

human
rabbit

CD59 8 42-58

C9: 359-384

334 - 418

FFH
Y ESEC
Id #3

We claim:

1. A compound that specifically inhibits the formation of the hu C5b-9 complex-selected from the group consisting of molecules structurally mimicking CD59 amino acid residues 42 to 58 when they are in a spatial orientation which inhibits formation of the hu C5b-9 complex, wherein the compound is not hu CD59.

2. The compound of claim 1, selected from the group consisting of proteins, peptides, nucleic acids, and small molecules which bind specifically to amino acids 359 to 384 of hu C9.

3. The compound of claim 2, wherein the protein is an antibody.

4. The compound of claim 2, wherein the protein is a chimeric peptide which includes the amino acids 42 to 58 of the human sequence of CD59. *fusion protein*

5. The compound of claim 2, wherein the peptide is a covalently cyclized peptide comprising hu CD59 amino acid residues 42 to 58.

6. The compound of claim 2, wherein the composition is a peptide of less than forty amino acids residues including amino acid residues 42 to 58 of hu CD59.

7. The compound of claim 1, further comprising a pharmaceutically acceptable carrier for administration to patients in need thereof.

8. The compound of claim 1 wherein the compound is a peptidomimetic compound comprising the side chains of hu CD59 amino acid residues His⁴⁴, Asn⁴⁸, Asp⁴⁹, Thr⁵¹, Thr⁵², Arg⁵⁵, and Glu⁵⁸ in an equivalent spatial orientation and alignment to that presented on the surface of hu CD59.

9. The compound of claim 8 wherein the spatial orientation and alignment of the side chains of His⁴⁴, Asn⁴⁸, Asp⁴⁹, Thr⁵¹, Thr⁵², Arg⁵⁵, and Glu⁵⁸ in the compound are equivalent to the spatial orientation and alignment deduced by NMR structure determination.

10. A method for inhibiting C5b-9 complex assembly comprising administering to a patient in need thereof an effective amount of a composition to increase CD59 inhibition of C5b-9 complex assembly wherein the composition includes a compound selected from the group consisting of molecules structurally mimicking CD59 amino acid residues 42 to 58 which bind to C9 wherein the compound is not hu CD59.

11. The method of claim 10, wherein the compound is selected from the group consisting of proteins, peptides, nucleic acids, and small molecules which bind specifically to amino acids 359 to 384 of hu C9.

12. The method of claim 11, wherein the protein is an antibody.

13. The method of claim 11, wherein the protein is a chimeric peptide which include the amino acids 42 to 58 of the human sequence of CD59.

14. The method of claim 11, wherein the peptide is a covalently cyclized peptides comprising hu CD59 amino acid residues 42 to 58.

15. The method of claim 11, wherein the composition is a peptide of less than forty amino acids residues including amino acid residues 42 to 58 of hu CD59.

16. The method of claim 10, wherein the composition further comprises a pharmaceutically acceptable carrier for administration to patients in need thereof.

17. The method of claim 10, wherein the patient is in need of suppression of complement-mediated inflammation.

18. The method of claim 10 wherein the compound is a peptidomimetic compound comprising the side chains of hu CD59 amino acid residues His⁴⁴, Asn⁴⁸, Asp⁴⁹, Thr⁵¹, Thr⁵², Arg⁵⁵, and Glu⁵⁸ in an equivalent spacial orientation and alignment to that presented on the surface of hu CD59.

19. The method of claim 18 wherein the spacial orientation and alignment of the side chains of His⁴⁴, Asn⁴⁸, Asp⁴⁹, Thr⁵¹, Thr⁵², Arg⁵⁵, and

Glu⁵⁸ in the compound are equivalent to the spacial orientation and alignment deduced by NMR structure determination.

20. A compound that specifically promotes the formation of the hu C5b-9 complex selected from the group consisting of molecules structurally mimicking C9 amino acid residues 359 to 384 when they are in a spatial orientation which promotes formation of the C5b-9 complex, wherein the compound is not hu C9.

21. The compound of claim 20, selected from the group consisting of proteins, peptides, nucleic acids, and small molecules which bind specifically to amino acids 42 to 58 of hu CD59.

22. The compound of claim 21, wherein the protein is an antibody.

23. The compound of claim 21, wherein the protein is a chimeric peptide which includes the amino acids 359 to 384 of the human sequence of C9.

24. The compound of claim 21, wherein the peptide is a covalently cyclized peptide comprising hu C9 amino acid residues 359 to 384.

25. The compound of claim 21, wherein the composition is a peptide of less than forty amino acids residues including amino acid residues 359 to 384 of hu C9.

26. The compound of claim 20, further comprising a pharmaceutically acceptable carrier for administration to patients in need thereof.

27. A method for specifically promoting hu C5b-9 complex assembly comprising administering to a patient in need thereof an effective amount of a composition to decrease CD59 inhibition of C5b-9 complex assembly wherein the composition comprises a compound selected from the group consisting of molecules structurally mimicking C9 amino acid residues 359 to 384 when they are in a spatial orientation which promotes formation of the complex, wherein the compound is not hu C9.

28. The method of claim 27, wherein the compound is selected from the group consisting of proteins, peptides, nucleic acids, and small molecules which bind specifically to amino acids 42 to 58 of hu CD59.

29. The method of claim 28, wherein the protein is an antibody.

30. The method of claim 28, wherein the protein is a chimeric peptide which include the amino acids 359 to 384 of the human sequence of C9.

31. The method of claim 28, wherein the peptide is a covalently cyclized peptide comprising hu C9 amino acid residues 359 to 384.

32. The method of claim 28, wherein the composition is a peptide of less than forty amino acids residues including amino acid residues 359 to 384 of hu C9.

33. The method of claim 27, wherein the composition further comprises a pharmaceutically acceptable carrier for administration to patients in need thereof.

34. The method of claim 27, wherein the patient is in need of complement activation.

35. The method of claim 27, wherein the composition is administered as a adjunct to tumor therapy.